

CLAIMS:

1. A grip for engaging a stent in a stent delivery catheter prior to delivery, the grip comprising a body region, the body region having an outer diameter, a first end and a second end, the outer diameter of the first end being greater than the outer diameter of
5 the second end, the grip being at least partially constructed from a polymeric material.
2. The grip of claim 1 further comprising a hub region, the hub region being adjacent to the first end of the body region, the hub region having a diameter greater than the outer diameter of the first end of the body region.
3. The grip of claim 1 wherein the outer diameter of the body region is substantially
10 tapered from the first end to the second end.
4. The grip of claim 1 wherein at least a portion of the grip has a hardness of about 60 to about 90 as measured on the Shore A hardness scale.
5. The grip of claim 1 wherein at least a portion of the grip has a hardness of 70 to about 90 as measured on the Shore A hardness scale.
- 15 6. The grip of claim 1 wherein at least a portion of the grip is constructed from at least one material of the group consisting of: polyether ester, polyether block amides, PELLETHANE, TECOTHANE, polyurethane, rubber foam, silicon and any combination there of.
7. The grip of claim 1 wherein a least a portion of the grip is radiopaque.
- 20 8. The grip of claim 1 wherein the grip is engaged to an inner shaft of a catheter assembly.
9. The grip of claim 8 wherein the grip defines at least a portion of a stent mounting region of the inner shaft.
10. The grip of claim 8 wherein the catheter assembly comprises a stent, the stent
25 having an unexpanded state and an expanded state, in the unexpanded state at least a portion of the stent being disposed about and engaged to at least a portion of the body region of the grip.
11. A stent delivery system comprising:
a catheter, the catheter having an inner shaft and a retractable sheath, the
30 inner shaft having at least one grip member engaged thereto, the at least one grip member comprising a body region, the body region having an outer diameter, a first end and a second end, the outer diameter of the first end being greater than the outer

diameter of the second end, the at least one grip member being at least partially constructed from a polymeric material; and

a stent, the stent being expandable from an unexpanded state to an expanded state, in the unexpanded state at least a portion of the stent being disposed about a portion of the inner shaft and engaged to at least a portion of the body region of the at least one grip, in the unexpanded state the retractable sheath being overlying the stent, when the retractable sheath is retracted off of the stent, the stent is expanded to the expanded state.

12. The stent delivery system of claim 11 wherein the stent comprises a plurality of struts.

13. The stent delivery system of claim 12 wherein the catheter exerts a longitudinal force upon individual struts of the stent when the sheath is retracted from about the stent, the at least one grip member reducing the longitudinal force the catheter exerts on the individual struts.

14. The stent delivery system of claim 11 wherein the at least one grip member further comprises a hub region, the hub region being adjacent to the first end of the body region, the hub region having a diameter greater than the outer diameter of the first end of the body region, in the unexpanded state an end of the stent being positioned adjacent to the hub region.

15. The stent delivery system of claim 11 wherein the outer diameter of the body region of the at least one grip member is substantially tapered from the first end to the second end.

16. The stent delivery system of claim 11 wherein the at least one grip member comprises a first grip member and a second grip member, the second end of the body region of the first grip member being substantially adjacent to the second end of the body region of the second grip member.

17. The stent delivery system of claim 16 wherein the stent comprises a first end portion, a second end portion and a body portion therebetween, in the unexpanded state the first end portion of the stent being engaged to at least a portion of the body region of the first grip member, and the second end portion of the stent being engaged to at least a portion of the body region of the second grip member.

18. The stent delivery system of claim 17 wherein in the unexpanded state the body portion of the stent overlies the second end of the body region of the first grip member and the second end of the body region of the second grip member.
19. The stent delivery system of claim 12 wherein the at least a portion of the at least one grip member has a hardness of about 60 to about 90 as measured on the Shore A hardness scale.
20. The stent delivery system of claim 12 wherein the at least a portion of the at least one grip member has a hardness of about 70 to about 90 as measured on the Shore A hardness scale.
21. The grip of claim 1 wherein at least a portion of the grip is constructed from at least one material of the group consisting of: polyether ester, polyether block amides, PELLETHANE, TECOTHANE, polyurethane, rubber foam, silicon and any combination there of.
22. The stent delivery system of claim 12 wherein the at least a portion of the at least one grip member is radiopaque.
23. A method of reducing the longitudinal aspect of a catheter to stent force in a stent delivery system comprising a catheter shaft, a retractable sheath and an expandable stent, the method comprising the step of:
minimizing the space between the catheter shaft and the retractable sheath.
24. The method of claim 23 wherein minimizing the space between the inner shaft and the retractable sheath is accomplished by providing a portion the catheter shaft with at least one grip member, the at least one grip member comprising a body region, the body region having an outer diameter, a first end and a second end, the outer diameter of the first end being greater than the outer diameter of the second end, the at least one grip member being at least partially constructed from a polymeric material; and
engaging at least a portion of the stent in an unexpanded state to at least a portion of the body region of the at least one grip, in the unexpanded state the retractable sheath being overlying the stent, when the retractable sheath is retracted off of the stent, the stent is expanded to an expanded state.